one or more advertisements for inclusion with the personalized search results. The advertisement server **114** can select the advertisements in any number of ways including any known or hereafter developed method, and the present invention is not limited to any particular method for selecting advertisements given a set of terms or topics. One method of selection of relevant advertisements is described in the Relevant Advertisements Application, cited above. In general, the advertisement server **114** maintains a database of terms or topics, along with the advertisement database **116**, which can also be indexed, either by keywords extracted from each advertisement, or with keywords selected by provider of the advertisement. The association of terms in the database to advertisement keywords can be by any number of mechanisms, including various types of monetary based models (e.g., pay-for-placement, pay-for-performance), or matching algorithms (e.g., Boolean match, or fuzzy matching). What is of interest in the advertisement selection process is that the advertisement server **114** selects advertisements using a search profile derived from the search results that were personalized based on the user's profile. Hence, the advertisements that are selected will in turn be personalized to the interests of the user.

[**0097**] Once selected, the advertisements are than provided to the front end server **102**, along with the personalized search results. The front end server **102** integrates the selected personalized advertisements into the personalized search results, and provides the results to the client **118**, for example as a web page, or through whatever other visualization or presentation interface the client **118** is using. The advertisements may be interlineated with the personalized search results, or placed in a visually segregated region of the user interface of the client (e.g., a separate window, pane, tab, or graphical demarcated area).

[**0098**] The advertisements provided to the front end server **102** can be integrated with the personalized search results so that they appear on every page of the results. In an alternative embodiment, a different set of advertisements is provided on each page of the personalized search results, where the advertisements are derived from a search profile that is responsive to just the documents listed on that page. Thus, in this embodiment, the content analysis module **112** updates the search profile in response to the user accessing another page of the personalized search results, and provides the updated search profile to the advertisement server **114**, which selects the appropriate advertisements in response thereto.

[**0099**] In another embodiment, additional information is used to create the search profile. In particular, the results of both the personalized results of the current search query, and of at least one prior search query, are analyzed by the content analysis module **112** to form the search profile. This approach is beneficial to reflect a more long term assessment of the user's interests, as it spans multiple queries. This is beneficial because user's typically attempt multiple queries in a given area of interest, rather than just a single query.

[**0100**] In some instances, the search query itself may be such that the search results cannot be usefully personalized. For example, this is often the case when the user searches for a some type portal site, such as the home page of a commercial portal (e.g., Google.com, Yahoo.com, etc.), a news organization (e.g., CNN.com, or MSNBC.com), an organization (e.g., IEEE.com), or a government agency (e.g., the U.S. State Department). For these types of searches, the search engine identifies the portal aspect of in the search results (e.g., from the domain name), and then uses just the user profile, without personalization of the results, to select the advertisement. Thus, in this case, the user profile itself operates as the search profile.

[**0101**] From the foregoing, it should be appreciated that the present invention includes a general model of using a first set of algorithms to obtain and rank a first set of search results, and then using a second set of algorithms that analyzes the first set of results in order to rank a second set of search results, where the first and second results are from different data sets, and the first and second sets of algorithms are different from each other as well. Thus, in the above described embodiment, the first set of algorithms includes a search query algorithm to obtain the first set of search results from a general content corpus, and a personalization algorithm which ranks a first set of search results according to a user profile, and the second set of algorithm includes the content analysis module which analyzes the ranked search results to produce the search profile and the advertisement server which uses the search profile to search for and rank a set of advertisements from the advertisement database. The general method here is to use the ranked data resulting from one process to rank the data resulting from another process. This method may be employed in other applications, for example, where the first set of data is business financial data, and the second set of data is product information data.

[**0102**] The present invention has been described in particular detail with respect to one possible embodiment. Those of skill in the art will appreciate that the invention may be practiced in other embodiments. First, the particular naming of the components, capitalization of terms, the attributes, data structures, or any other programming or structural aspect is not mandatory or significant, and the mechanisms that implement the invention or its features may have different names, formats, or protocols. Further, the system may be implemented via a combination of hardware and software, as described, or entirely in hardware elements. Also, the particular division of functionality between the various system components described herein is merely exemplary, and not mandatory; functions performed by a single system component may instead be performed by multiple components, and functions performed by multiple components may instead be performed by a single component.

[**0103**] Some portions of above description present the features of the present invention in terms of algorithms and symbolic representations of operations on information. These algorithmic descriptions and representations are the means used by those skilled in the data processing arts to most effectively convey the substance of their work to others skilled in the art. These operations, while described functionally or logically, are understood to be implemented by computer programs. Furthermore, it has also proven convenient at times, to refer to these arrangements of operations as modules or by functional names, without loss of generality.

[**0104**] Unless specifically stated otherwise as apparent from the above discussion, it is appreciated that throughout the description, discussions utilizing terms such as "calcu-